FORMS FOR USE IN DEVELOPING A FARM PLAN

by

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Instructions for Using the Following Forms In the Appraisal and Development of a Farm Plan

The following forms have been constructed to assist the individual farmer to appraise and reorganize his farm business if it appears desirable.

The use of any one particular set of forms is not essential to the systematic and logical appraisal and development of a farm organization; neither is there any one set of forms that will satisfactorily meet every situation. Thus it should be kept in mind that, if a part or all of the following forms, which have been prepared primarily as a guide, do not satisfactorily meet one's requirements, he need not hesitate to modify and expand them.

The use of these forms may be simplified by a careful study of "Planning My Farm Business," Ohio Agricultural Extension Service Bulletin 211, as it is a discussion of the more important principles and procedures involved in appraising and developing a farm plan. In addition, it may be of some help if a copy of the mimeographed illustration showing how these forms were used in the development of a plan for a typical west central Ohio farm is obtained from the Rural Economics Department, Ohio State University.

The insturctions which follow on how the accompanying forms may be used take up each section and comment primarily upon the mechanics involved in their use. Each section of the forms is referred to by first giving the page number and, second, the number or letter of the section. It is assumed that the principles and some of the procedure involved will be obtained by reference to the bulletin "Planning My Farm Business" and the mimeographed illustration.

Page 1, 1 - If the space provided for the map of the farm is not adequate, insert or attach a sheet that is sufficiently large to accommodate a workable map of the farm.

Page 1, 2 - The acreages of the various uses may easily be obtained by referring to the map. Caution should be taken to see that the total of the various uses checks with the known area in the farm.

Page 2, a - To a board fasten a blank map on which only field lines are shown, then walk over the farm and trace on the map the larger areas of the most common soil types. These may be identified by the differences in color and texture. Usually the different soil types change with variations in topography. If the space provided for the soils map is inadequate, do as suggested for page 1, 1. At the same time one is making a general map of the soils on the farm, samples of the soils should be taken according to the instructions contained in the Ohio Agricultural Extension Service Bulletin 190, "Soil Testing as a Guide to Soil Management," in order that one may ascertain the lime and fertilizer needs. Instructions on how to get the sample analyzed are contained in the bulletin.

Page 2, b and c - The approximate acreage of the various soil types may be estimated by examining the map showing the areas of different soil types. The types of legume that are growing at present on the different soils can be determined by observation. The amount of lime and fertilizer needed to grow alfalfa will be determined by the analysis of the soil samples.

Page 3, a - A map of the topography showing the major slope classes can be prepared at the same time the soils are sampled and mapped.

Page 3, b - From observation and the map showing topography the data on acreages of various slopes can be secured for the crop, permanent pasture, and wood land. If it appears that erosion is occurring as a result of the topography of the farm, it may be desirable to consult your county agricultural agent with regard to obtaining assistance in planning the use of the land.

Page 3, 5 - Source - experience and observation. If drainage or flooding are acute problems, it will be desirable to map the areas affected so that they can be dealt with accordingly in the development of the farm plan.

Page 4, 6 - Check the climatic characteristics of the neighborhood that tend to favor or limit the type and amount of crops which can be produced successfully.

Page 4, 7 - List those crops that are grown on the farm at present along with the present soil treatment of each crop. The yield indicated should be the average received over a period of years and not the best yields. Yields should be adjusted for shrinkage after storage. In the case of corn, the amount placed in the crib should be reduced by approximately 15% before computing per acre yields. The yield of pasture can be expressed in days that an acre will pasture a mature cow or horse during a pasture season.

Page 4, 8 - Condition of fences may be observed and indicated on map at time soil and topography are being mapped. The need for a new fence or the rebuilding of the old one should be noted.

Page 5, 9 - Record here the capacity of the buildings for different types of crops, livestock, and machine storage. Indicate what type of livestock the buildings are now equipped to handle and the type to which they could readily be adapted. In appraising condition, list most urgent repairs needed and estimate their cost.

Page 5, B - Under general comments list other potential outlets such as roadside stand, canning factory, etc.

Page 5, 1 - The space for invoicing livestock does not permit one to list individually the cows and horses, which is desirable if one is to arrive at something near their true present value. This can be done on a separate sheet and the totals entered here.

Page 6, 2 - If you have some equipment which is not listed in the left hand column, space has been provided for writing in extra items. In appraising the condition it is desirable to indicate how soon the older machines will need to be replaced particularly if it is evident that it will need to be done in the next year or t

Page 6, 3 - In filling out the financial statement, the value of livestock and equipment has already been determined. The value of real estate should be based on present selling price. No form has been provided for invoicing the feed and supplies; however, these can be listed on another sheet and the total value entered here. Care should be exercised to list all accounts payable as well as those receivable. The net worth is obtained by deducting the liabilities from the assets.

Page 7, D - The number of months of labor given to the operation of the farm by the operator's wife or children may be computed by multiplying the average number of hours or fraction of hours worked each day on chores or other labor by 365 days and dividing this by 270 hours (the average number of work hours per month); this will give the approximate number of months worked each year.

Page 7, II - In considering the suitability of an individual enterprise, write in the word "yes" if the particular resource is adapted to its production; if questionable put in a "?",and if not suited use the word "no". If some of the resources are not at present suitable to a particular enterprise but can be made so, for instance, if by applying lime one can grow alfalfa, then in the summary column on the right fill in the words (yes if _____).

In considering the different types of farming enumerated in the lower left hand part of the table, both the suitability of the resources to that particular type of farming and whether the particular type of farming will make good use of the resources must be considered. If it is both adapted to and will make good use of, then use the word "yes"; if adapted but it will fail to make good or full use of the resources, then use the symbol "?"; if it is not adapted use the word "no". For example, in the case of feed crops, if all of the necessary feeds for the particular type of livestock are grown but some of them, such as hay, cornstover, or pasture, are in excess of the amount that the particular type of livestock can use, then one should indicate doubtful or negative suitability. In arriving at a statement for the summary column on the right hand side, weigh both the adaptability of the type of farming to the existing resources and how fully it will use the resources, particularly the labor supply.

Page 8, III - On the left hand side of the form list the present use. This may be obtained from page 1, 2. In the center section describe any changes that are to be made in land use such as, let us say, the retirement of 4 acres of crop land because of low productivity to permanent pasture. The change would be indicated in the right hand column by a reduction of 4 acres in the crop land and by a similar increase in permanent pasture land. If any significant changes in land use are planned, it will be desirable to prepare a map indicating the revisions and attach it at this point. As previously indicated, it may be desirable to obtain the aid of specialists in soil conservation work in determining how the land may best be used, particularly if there is much tendency for the land to erode.

Page 8, A - Analyze first the present cropping system to determine if it will be satisfactory. In appraising it, first indicate what the rotations are. Next list the crops and average acreage of each that is harvested annually, listing the soil treatment now used for each crop, the average yield per acre, (obtainable from form Page 4, 7) and the total annual production. The amount available for feed or sale is found by deducting from the total production the amount required for seed or, if a grain-rented farm, by deducting the rental share as well as seed. In computing total annual production, a reduction for shrinkage after storage should be made.

Next, list the acreage, soil treatment, yield, and total production of rotation crops pastured. If part of a legume meadow is harvested for hay and part used for pasture, the acreage harvested will be included under crops harvested and that which is pastured will be listed under crops pastured.

On completing the above form the next step is to test how well the present cropping system is maintaining the productivity of the soil. This is arrived at by utilizing the attached form (page 9), "The Soil Productivity Balance of Crop Land." In working out the productivity on the present system, use the average annual acres of the various crops grown, fertilizer applications made, and the manure produced by the livestock now on the farm. In computing the tonnage of manure produced, use Schedule B, Method II, which is on the back of the productivity balance sheet.

If the productivity test comes out negative, particularly if it is very much so, it indicates that the present cropping system is not maintaining the soil. Perhaps there are also other disadvantages such as a shortage of pasture or hay, or probably there are some bad labor peaks. These should be summarized under the item "Comments on the Present Crop System" at the top of page 10.

After summarizing the present cropping system, if it is evident that some changes are necessary if a good farm plan is to be developed, then the next phase is to set up a new cropping system.

Page 10, B - First review the discussion on planning the cropping system in Bulletin 211, "Planning My Farm Business." The drafting of a new crop plan may necessitate the setting up of one or more new rotations, perhaps a major and a minor. After drawing up one or more crop plans, together with any changes deemed desirable in the applications of fertilizer, manure, etc., one is then ready to test the new crop system (or systems if two or more potential plans are being considered) to see how well it will maintain the productivity.

The procedure for making the productivity test on the proposed new crop system will differ slightly from that used in testing the plan now in operation in that one will not definitely know how many head of livestock of each type will be kept under the new plan, whereas this is known when testing the plan already in use. Under Schedule B — Tonnage of Manure Produced For the Crop Land — shown on the back of the productivity balance sheet are alternate methods. It will be necessary to use Method I since the number of head of each type of livestock is not as yet definitely known. If it appears that more livestock can be kept under the proposed plan, due perhaps to increased productivity and more pasture and hay, then in estimating the tons of manure one should add to the tonnage produced by the present livestock (computed when testing the productivity of the present cropping system) the amount that one estimated will be produced by additional animals that it may be possible to keep.

Under the head of "Comments on Proposed New Crop System" (bottom of page 10) one should summarize the apparent advantages and disadvantages and if lime, drainage, contour farming, or other changes are necessary before the new system can be placed in operation, these should be noted.

Page 12, V - If it has become evident that it will be desirable to use a cropping system that differs from that now being followed, then the development of a plan for the livestock system will need to take into account the type of crops and the amount of each that one has estimated will be available for feeding (see page 10, B). If no change is to be made in the cropping system from that now followed, then the type of crop and the amount of each available for feeding is shown on page 8, A.

Page 12, A - A good place to start in the working out of the livestock system is to study the section dealing with planning the livestock system contained in Bulletin 211, "Planning My Farm Business." The next step is to tentatively determine the types of livestock to be kept. The problem of determining the number of head of each type that the available feed will support is one of cutting and trying. In budgeting the feed it is desirable that the farmer draw upon his own feeding experience for the quantity of the various feeds that are required per head. For those who are not fully familiar with feed requirements, information on the quantities of feed required for different types of livestock has been assembled for use as a guide. This data is contained in Ohio Agricultural Extension Service Bulletin 203, "Feed Consumed by Livestock."

In using the form page 12, A the various types of feed that will be used will need to be written in across the top. Care must be taken to keep the unit of measure in which the feed is budgeted the same. For instance, one cannot add bushels of shelled corn, hundreds of pounds of ground corn and cob meal, and bushels of ear corn. In most cases the quantity of grain fed per head is on a dry weight basis, thus the total grain available should be adjusted for shrinkage after storage.

If the one feed budget form on page 12, A is inadequate, similar forms may easily be ruled up and attached.

Page 13, B - If difficulty is encountered in developing a livestock program that will balance well with the proposed new crop plan, some revision in one or the other or both may be necessary. If minor adjustments such as reducing the acres of hay and increasing the area of pasture, or vice versa, will largely overcome the difficulties, then note such changes here. If major changes are necessary, then it may require re-working form page 10, B or form page 12, A, or both.

Page 13, A - If one already has his farm adequately equipped with machinery and power, it will not in most cases be necessary to work out the forms on page 13, 1 and page 14, 2 unless the new crop plan is so greatly different from that now being used that a large amount of new equipment or power will be needed. The object of these forms is to assist one in the determination of type and size of equipment and the amount of power needed and whether it should be owned individually, in partnership, or hired.

Page 13, 1 - The procedure for working out this form is, first, to list the crops that are included in the proposed crop plan in the spaces at the top of the form under the words "Acres Covered Per Operation by Crops." In the left hand column list the operations, such as plowing, disking, planting corn, drilling grain, cutting grain, cutting corn, etc., that must be performed (either by hand or with machines) in the production of the crops that you have listed at the top of the form. For instance, if the crops consist of corn, wheat, oats, and meadow, and the only crop that you will plow for is corn, and you will have an average annual acreage of corn of 35 acres, then list 35 acres plowed under corn and in the total acres of each operation list 35 acres. If one disks his corn ground twice, he would list 70 acres under corn, and if he disks his wheat and oats land he would list under each the respective number of acres covered annually and in the total column the total number of acres of land to be disked during the year. By following the same procedure for each operation one will arrive at the size of task to be performed and the type of machine or operation needed to do the work.

The column on the extreme right, "Minimum Work Time Available," should be filled in for those operations such as spring plowing and fitting, planting, harvesting, etc., for which the time available for their successful accomplishment is often limited. For instance, in the case of spring plowing, due to weather and soil conditions the number of days in which one must get his ground plowed for spring crops is often very limited. Thus, in order to be able to accomplish the task one must have or obtain equipment and power of such a size that the number of acres to be plowed can be covered in the time available. The minimum time available can be arrived at best by the farmer drawing on his own experience over the past 5 or 10 years.

Page 14, 2 - The equipment to be used and desirable size may largely be determined by an examination of the data included in the preceding form. Whether a machine is to be owned individually, jointly, or hired will largely depend on the capital available, the size and nature of the task to be performed, and the opportunity for joint ownership or for hiring.

Page 14, 1 - See the illustration at the top of page 15 for the method to use in determining the number of man hours required to produce the acres of each crop included in the proposed plan. The operations performed on each crop will vary from farm to farm and each farmer should work out the labor required on the basis of the operations that he performs in the production of his crops, using the acres that he covers per day with his machines and power supply. Most farmers are familiar with the number of acres that they plow, plant, sow, harvest, etc., per day. By dividing the amount accomplished per day into the total number of acres to be covered, the number of days required for each operation may be found. Some allowance should be made for the fact that unfavorable weather and larger than average yields influence the labor required, otherwise in a year when the weather is such that more work than normal must be done, one may find himself short of labor. The right hand column may be used to record total power requirements.

Page 15, 2 - The principal problem involved in arriving at the labor needed to care for the livestock is the determination of man hours required per head of the different types of livestock. An approximation of this may be arrived at by observing the time required to do the present chores. If, for instance, it takes a person with 5 cows two hours per day throughout the year to stable, feed, and milk them, or a total of 730 hours per year, then each cow requires approximately 150 hours of labor per year. By a similar process of reasoning the approximate annual labor requirements for the various types of livestock can be compiled. Data, based on labor required by different types of livestock on cost account farms, that can be used as a guide may be obtained by writing to the Rural Economics Department, Ohio State University.

Page 15, 3 - In addition to the labor required annually for crops and livestock (obtained from forms page 14, 1, and page 15, 2) is the labor required for the maintenance and miscellaneous work such as repairs, weed mowing, manure hauling, and the like. For method of estimating the amount of time required, see the section dealing with this subject in Bulletin 211, "Planning My Farm Business." On the average farm the maintenance and miscellaneous labor will make up approximately 25 percent, and the labor on crops and livestock 75 percent of the total required to operate the farm. This will vary from farm to farm and should be modified to fit the individual condition.

The approximate amount of family labor available during the year may be obtained by multiplying the number of months of operator and family labor by 270 hours (the average hours available for work per month). This average may be modified to fit the working habits of the individual family. If, in addition to labor provided by the family, it is necessary to hire full time labor, then the total hours that will be made available by the hired labor should be computed and added to that provided by the family when balancing labor available against that required.

Page 16, 4 - After balancing the total labor required with the total available, there still remains a question as to whether the labor available will be sufficient to do the task since the demand for labor may not be uniformly distributed. Thus, one must attempt to determine when the demand for the labor will occur. By drawing upon one's experience as to when various tasks are normally performed during the year, he will encounter but little difficulty in dividing up the total hours required by half-month periods for each particular crop and type of livestock. The form provided on page 16 is arranged to divide the work by half-month periods. Across the top of the table are spaces for writing in each crop and type of livestock included in the plan.

No space has been provided for distributing the maintenance and miscellaneous labor as most of this type of work is generally flexible enough as to when it is performed so that most of it can be done during periods when the labor is not occupied by regular work on crops and livestock. Instead, a space has been provided in the right hand column for computing the labor available each period for maintenance and miscellaneous work (the difference between total labor required on crops and livestock and the total labor available). It is necessary to see that there is an adequate supply of labor above that required for crops and livestock to do the maintenance and miscellaneous work.

Page 17, VII - In determining the probable receipts, expenses, and income that the proposed plan will yield, it is necessary to use long time average prices, average yields, production, number of head, etc. (see the section on determining probable receipts, expenses, and income in Bulletin 211, "Planning My Farm Business"). A list of long time Average prices can be obtained from the Rural Economics Department, Ohio State University.

Page 17, A - Both the quantity of crops and the amount of livestock and livestock products that will be available for sale may be obtained by referring to page 12, A. From the livestock and livestock products that are to be produced by the feed that has been budgeted for them, it will be necessary to deduct the amount that is normally consumed on the farm by the farm family and hired laborers; also provision must be made for replacement stock so that the physical inventory will not be reduced before determining the amount available for sale.

Page 17 and 18, B - The major expense items are discussed in the bulletin "Planning My Farm Business." The information necessary for many of the items such as hired labor, purchased feed, fertilizer, lime, seed, fuel, livestock, purchases for replacement and feeding, etc., has largely been assembled in previous forms. Other costs such as taxes, insurance, repairs, replacement, etc., will need to be otherwise determined.

The average annual expected farm income from the proposed new plan will be the difference between the anticipated receipts and expenses.

Page 19 and 20, VIII - If the farm plan finally selected differs materially from the one now followed, it will unquestionably require several years to rearrange the farm and establish the new crop and livestock system. Since all of the adjustments will not, in most cases, be made in one year it will be desirable to prepare a schedule of the changes that are to be made each year. This can best be done by the use of several maps (a map for each year covered by the transition period). The first map will be the map of field arrangement and land use prepared on page 1, 1; the second map will show the field arrangement and rotation patterns at the end of the first year of the transition period. Under the map should be enumerated the things that are to be done during that year such as moving a fence, purchasing breeding stock, liming, sowing alfalfa, etc. Such a map and list of changes and additions should be prepared for each year of the transition period.

If the space provided is inadequate, sheets of sufficient size may be used and attached at this point.

THE DEVELOPING OF A FARM PLAN FOR _____ FARM

CONTAINING _____ ACRES; LOCATED IN _____ COUNTY

I. INVOICING AND APPRAISING THE RESOURCES

A. Land Resources

1. Map of Present Field Arrangement and Land Use

2. Inventory of the Present Land Use

Type of Use	Acres
Rotated crop land	
Permanent pasture land	
Woodland pastured	
Woodland not pastured	
Farmstead, roads, waste and idle land	
Total Farm Area	

3. Inventory of the Soils

a. Map of farm showing major soil types

b. Analysis of the soils on the crop land

Soil type or color	Acres	The soil will grow what type of legume at present without adding lime	Test shows soil needs to grow alfalfa-	
			Lime per acre	Fertilizer per acre

c. Analysis of the soils on the non-crop land

Type of use	Type or color of soil	Acres	Treatment needed
Permanent pasture			
Wood land			
Other land			

4. Inventory of Topographic Conditions

a. Map of the farm showing topography or slope classes

b. Areas of land by different slope classes

Type of land use at present	Acres of different slope classes as they are related to the type of control and use necessary if erosion is to be minimized			
	Level to slightly undulating. No special control or use needed.	Undulating to slightly rolling. Contour cropping usually desirable if cultivated often.	Rolling to slightly hilly. Contour cropping or permanent pasture necessary.	Hilly or broken. Permanent pasture and woods.
Crop land				
Permanent pasture land				
Wood land				
Other land				

General comments on topography and erosion _____

5. Inventory of Drainage and Flood Conditions

Type of land use	Drainage adequate Acres	Drainage inadequate Acres	Land subject to flood Acres	Comments on adjustments needed to correct trouble
Crop land				
Permanent pasture land				
Other land				

6. Inventory of the Climatic Conditions

Do late spring frosts cause frequent damage? ..... Do early fall frosts cause frequent damage? .....

Is growing season always long enough to mature a good corn crop? .....

Is snow cover generally adequate to protect fall sown grain and meadow crops? .....

Are summer temperatures too high for good yields of oats? ..... Potatoes? .....

Is the area subjected during the crop season to frequent - (a) hail storms ..... (b) wind storms? .....

(c) heavy rains ..... (d) floods ..... (e) droughts .....

Other comments on climate .....

7. Inventory of Present Productivity of the Farm

List Crops	Present soil treatment per acre	Yield per acre (1)
Cultivated crops		
Rotation pasture		
Meadow aftermath pasture		
Permanent pasture		
Others		

(1) Allow for 15% shrinkage in corn. Express pasture yields in pasture days per acre.

8. Inventory of Fences and Their Present Condition

External or line fences		Internal or division fences	
Proportion in good condition		Proportion in good condition	
Proportion in fair condition		Proportion in fair condition	
Proportion in poor condition		Proportion in poor condition	
Rods of new line fence needed		Rods of temporary fence in use	

General comments on fence - .....

.....

9. Inventory of Building Facilities, Present Condition, and Adaptability

Type of Building	Size and Capacity (bu., tons, head, etc.)	Equipped for and adaptable to (type of livestock)	Present Condition (list major repairs needed)
Houses Main and other			
Barns and attached sheds Main barn			
Other barns			
Corn storage			
Farrowing house or houses			
Poultry houses			
Garage and shop			
Silos			
Other buildings			

B. Market Resources

Type of road and miles to local shipping point - .....

Distance to established livestock markets and type .....

MARKET FOR DAIRY PRODUCTS - Fluid milk distributor ..... Condensery or cheese plant ..... Cream station .....

Cream route ....., MARKET FOR POULTRY PRODUCTS - Retail ..... Local buyers ..... Auction .....

General comments - .....

C. Capital Resources

1. Inventory of Livestock Now on Farm

Type	Number	Present Value	Type	Number	Present Value
Horses			Sows and gilts		
Cows - dairy or beef			Pigs		
Heifers- dairy or beef			Boars		
Calves - dairy or beef			Poultry, hens		
Bulls - dairy or beef			Poultry, other		
Feeder cattle					
Sheep - ewes and rams			Total Value		

2. Inventory of Machinery, Power, etc. Now on the Farm

Type of Equipment	Number	Size	Condition	Present Value
Tractor (G., P.)				
Tractor plow				
Other plows				
Disk harrow				
Spring tooth harrow				
Spike tooth harrow				
Cultipacker or roller				
Corn planter				
Tractor cultivator				
Horse cultivators				
Grain drill				
Grain binder				
Mowing machine				
Side delivery rake				
Hay loader				
Manure spreader				
Wagons and racks				
Other equipment				
Other miscellaneous equipment				
Total value				

3. Farm Financial Statement

Assets	Dollars	Liabilities	Dollars
Land and buildings		Real estate mortgages	
Power and equipment		Chattel mortgages	
Livestock		Accounts payable	
Feed and supplies		Other liabilities	
Cash and other assets		Total liabilities	
Total assets		Net worth	

D. Labor Supply

Supply now on farm that is available for work	Months per year	Permanence of present supply of family labor and certainty of obtaining hired labor
Operator		
Operator's wife		
Children of working age		
Other family labor		
Regular hired labor		

II. SELECTING THE TYPE OF FARMING

Type of Farming or Enterprise Considered	Check if resource available is suitable and will be fully utilized by the type of farming or enterprise considered										Indicate if suitable or can be made so, also probable choice of type of farming
	Land	Climate	Bldgs. and Fences	Power & Equipment	Capital	Market Outlets	Labor Supply & Skill	Ability & Experience	Size of Farm	Feed Crops	
General Crops - Corn									XXXX	XXXX	
Wheat									XXXX	XXXX	
Oats									XXXX	XXXX	
Soybeans									XXXX	XXXX	
Clover									XXXX	XXXX	
Alfalfa									XXXX	XXXX	
Special enterprises - Seed production									XXXX	XXXX	
Sugar beets									XXXX	XXXX	
Potatoes									XXXX	XXXX	
Tobacco									XXXX	XXXX	
Canning crops									XXXX	XXXX	
Purebred livestock										XXXX	
Types of farming - Cash crops (no or little livestock)											
Dairy (fluid milk) and general crops											
Dairy (cream or mfg. milk) and general crops											
Major livestock hogs with general crops											
Major livestock fat cattle with gen. crops											
Major livestock poultry with general crops											
Beef breeding herd with general crops											
Pasturing beef or sheep crops primarily hay											
General livestock and general crops											
Fruit farming											
Truck crop farming											

III. DIVIDING THE FARM INTO CROP, PERMANENT PASTURE, AND WOOD LAND

Type of Use	Present acreage	List changes considered desirable in the use of the land and reasons	Revised acres
Cropland			
Permanent pasture			
Wood land			
Farmstead, waste, etc.			

IV. PLANNING THE CROPPING SYSTEM

In planning a cropping system, it is wise first to examine the one now in use as it may be very good and will need little or no revision.

A. Present Crop System, Rotation, Acreage of Each Crop, Soil Treatment, Yield, and Total Production

Rotation (major) _____

Rotation (minor) _____

Crops (list crops grown)	Acres	Soil Treatment per Acre	Average yield	Total production	Available for feed or sale after seed and rental share deducted
Crops harvested					
Crops pastured - Rotation pasture					
Meadow aftermath					
Other crop pasture					
Permanent pasture					
Woods pasture					
Crops not harvested or pastured but plowed down					

Productivity balance (computed according to Agronomy formula) _____

Form 4308

The Soil Productivity

An engineering "yardstick" by which to measure the rate of rise or fall in the producing capac
reduced to a single over-all figure. The procedure is in terms of the individual farm's own conditi

	Sod Crop GRAZED or MOWED for Hay	ACRES a	FACTOR b	POINTS a x b
1	*Alfalfa, seeded 1 yr. before.....		+2.5	+
2	*Alfalfa, seeded 2 yrs. before....		+0.5	+
3	*Alfalfa, seeded 3 yrs. before....		0	0
4	*Common Clovers,seeded 1 yr.before		+2.0	+
5	Clov-tim.Mix. seeded 1 yr. before.		+1.25	+
6	Tim-clov.Mix. seeded 2 yrs. before		+0.25	+
7	Timothy, seeded 1 yr. before.....		+0.25	+
8	Timothy, seeded 2 yrs. before.....		0	0
9	*Sweet Clover, seeded 1 yr. before		+3.0	+
10	(See Schedule A)		+	+
11	For RESTORATIVE CROPS Harvested...		.....	+

	Material NOT REMOVED from the Land	ACRES a	FACTOR b	POINTS a x b
12	Sweet Clover,MATURED, ungrazed this year...		+3.5	+
13	Sweet Clover, GREEN, plowed this year.....		+2.5	+
14	(See Schedule A)..		+	+
15	RESIDUES left on land from one year's crop: Corn stalk, soy and grain straw(Schedule A)		+0.25	+
16	Sum of CREDITS for Crop MANURE and RESIDUE.....			+

	CONTROLS and PROTECTIONS on Cropland	ACRES a	SLOPE b	FACTOR c	POINTS a x b x c
17	In SOD over winter and summer: (Items 11 plus 12).....		Item 31b	+1/10	+
18	In LIVE CROPS over winter only: (Item 26, 13,& 14 if applicable)...			+1/20	+
19	In ROW & SPRING DRILLED CROPS on CONTOUR and/or STRIPPED and/or TERRACED land (Items 25,27,28,29)..			+1/20	+
20	Credits for CONTROLS in operation against EROSION.....				+

	ADDED to SOIL during Crop Year	TONS a	FACTOR b	POINTS a x b
21	Fertilizer in terms of SINGLE Strength: (Item 21, Schedule C).....		+1.5	+
22	Manure produced on CROPLAND during GRAZING: (Item 22, Schedule B).....		+0.15	+
23	Manure produced in BARN and OPEN-LOT: (Item 23, Schedule B).....		+0.15	+
24	Sum of Credits for MANURE AND FERTILIZER.....			+

* Either straight stands or mixtures in which this legume constitutes 50 per cent or more (by weight) of the forage.

Productivity Balance of Cropland

asure the rate of rise or fall in the producing capacity of a farm's cropland. By it, all forces—good and bad—making up soil productivity, are dure is in terms of the individual farm's own conditions; the answer, arithmetic; its meaning usable, rendering the fate of cropland predictable.

Farm of.....

According to.....plan.

	ROW and DRILL Crops Harvested	ACRES a	FACTOR b	POINTS a x b
25	Corn, beet, tobacco, potato.....		-2.0	-
26	Rye, winter wheat, winter barley..		-1.0	-
27	Oats, spring wheat, spring barley.		-1.0	-
28	Soybean, as seed and/or hay.....		-0.5	-
29	(See Schedule A)		-	-
30	For DEGRADING CROPS Harvested.....		.....	-

	Acres of all CROPLAND ON FARM (Items 11,12,14,30) a	Estimated SLOPE of all Cropland Ft. fall in 100 Ft. b	FACTOR c	POINTS a x b x c
31			-1/10	-
32	Debits for EROSION assuming no controls.....			-

	WASTE of Manure	TONS a	FACTOR b	POINTS a x b
33	Manure produced in OPEN-LOT, subject to wasting (Item 33, Schedule B)....		-0.07	-
34	Debits for WASTE of Manure.....			-

POINTS a x b
+
+
0
+
+
+
+
0
+
+
..... +

POINTS a x b
+
+
+
+
..... +

POINTS a x b x c
+
+
+
..... +

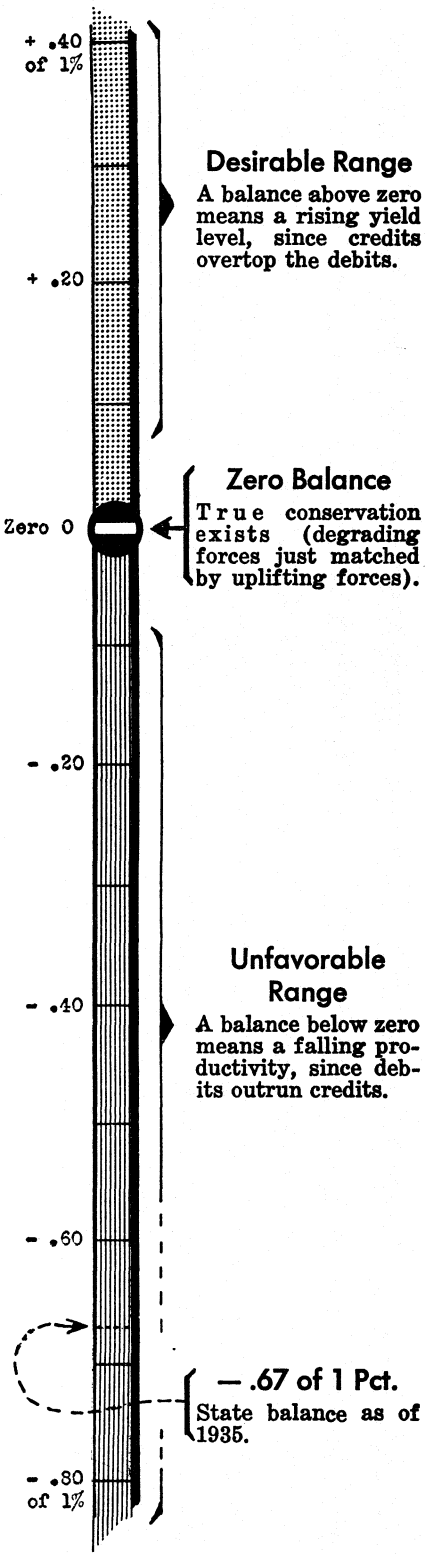
POINTS a x b
+
+
+
..... +

SUMMARY

		+	-
35	CROPPING PATTERN (Items 11,30).....	+	-
36	CROP RESIDUE (Item 16).....	+	
37	CONTROL & EROSION (Items 20,32).....	+	-
38	MANURE & FERTILIZER (Items 24,34)...	+	-
39	GRAND TOTALS.....	+	-
40	NET of Totals.....		

41 (Net, Item 40) divided by (Cropland, Item 31a) equals (of 1 % SOIL PRODUCTIVITY BALANCE)

THE BALANCE SCALE



Desirable Range
A balance above zero means a rising yield level, since credits overtop the debits.

Zero Balance
True conservation exists (degrading forces just matched by uplifting forces).

Unfavorable Range
A balance below zero means a falling productivity, since debits outrun credits.

— .67 of 1 Pct.
State balance as of 1935.

☞ *Supporting Schedules appear on reverse side.*

SCHEDULE A—Productivity Factors for Cropland

Item 10

FORAGE CROP AND SO USED	FACTOR
Brome grass	Same as timothy
Orchard grass	Same as timothy
Red top	Same as timothy
Lespedeza, annual	+0.5
Serica	+1.0

Item 14

GREEN CROP MANURE AND WINTER COVER CROP	FACTOR
Alfalfa, top growth left on land	+3.0
Clovers, common, top growth left on land	+2.7
Clover-timothy, top growth left on land	+2.0
Grasses, top growth left on land	+1.0
Serica, top growth left on land	+1.5
Timothy, top growth left on land	+1.0
Buckwheat, turned under green	+0.5
Cowpea, turned under green	+1.5
Crimson clover, turned under green	+1.0
Hubam clover, turned under green	+1.0
Corn, turned under at tasseling stage	+1.5
Soybean, turned under green	+1.5
Small grain cover crop, turned under or clipped	+0.5
Vetch, turned under green	+1.5

Item 15

CROP RESIDUE LEFT ON LAND	FACTOR
Beet tops	+0.25
Chaff, from combining alfalfa seed	+0.25
Chaff, from combining timothy seed	+0.25
Tomato vines	+0.25

Item 29

CROP HARVESTED OR GRAZED	FACTOR
Buckwheat	-1.5
Cabbage	-1.5
Canning pea	-0.5
Cowpea	-0.5
Cropland, fallowed	-0.5
Cropland, idle	0
Flax	-1.0
Fruit trees, cultivated	-2.5
Millet	-1.5
Onion	-2.0
Popcorn	-2.0
Rape	-1.5
Sorghums	-2.0
Sweet corn	-2.0
Sudan grass	-1.5
Tomato	-2.0
Vineyard, cultivated	-2.5

The Ohio State University and
United States Dept. of Agriculture,
Cooperating

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Agricultural College Extension Service,
H. C. Ramsower, Director,
Columbus, Ohio

SCHEDULE B—Tonnage of Manure Produced for Cropland

TO ESTIMATE the tonnage of manure available for Cropland in a single year, one of the two following methods may be employed.

Method I - Based on Estimated Loads Hauled (less accurate)

	Estimated acreage of CROPLAND SOD well grazed	
	About how many MONTHS so grazed during the year	
Item 22	Tonnage of MANURE directly on GRAZED Cropland (above acres x months x ½ ton)	
	*Estimated tonnage hauled from BARN or SHED	
	*Estimated tonnage hauled from OPEN LOT	
Item 23	Combined Tonnage from BARN and LOT (Sum of above)	

Method II - Based on Numbers of Livestock (more accurate)

GRAZED on Cropland SOD				KIND	Livestock in BARN & OPEN-LOT			
HEAD a	MONTHS IN FIELD b	TONS per Mo. per Hd. c**	TONNAGE of MANURE a x b x c		HEAD a	MONTHS Con-fined b	TONS per Mo. per Hd. c***	TONNAGE of MANURE a x b x c
		0.8		Horses & Mules			1.2	
		0.7		Cows kept			1.0	
		0.3		Young Cattle (not veal)			0.4	
		0.6		Beef Cattle fattened			0.8	
		0.3		Sows kept			0.4	
		0.06		Pigs fed out: raised &/or bought			0.12	
		0.08		Ewes kept			0.12	
		0.03		Lambs fed out: raised &/or bought			0.05	
		0.005		Poultry			0.01	

Item 22 On GRAZED Cropland

Item 23 Combined Tonnage in BARN & OPEN-LOT

OF the winter-produced Manure, about what FRACTION is normally produced in an OPEN-LOT: (✓)

All	4/5	2/3	1/2	1/3	1/4	1/5	0

Item 33 Tonnage of OPEN-LOT Manure (Above fraction x Item 23)

* Standard spreader = 1 ton; large size 1½ tons.
** Amounts (no bedding) have been adjusted to the equivalent of cattle manure.
*** Amounts (including bedding) have been adjusted to the equivalent of cattle manure as measured by crop-producing effect.

ed for Cropland

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	Livestock in BARN & OPEN-LOT			
	HEAD a	MONTHS Confined b	TONS per Mo. per Hd. c***	TONNAGE of MANURE a x b x c
.....			1.2	
.....			1.0	
al).....			0.4	
d.....			0.8	
.....			0.4	
bought.			0.12	
.....			0.12	
bought.			0.05	
.....			0.01	
ned Tonnage in BARN & OPEN-LOT..				

OF the winter-produced Manure, about what FRACTION is normally produced in an OPEN-LOT: (✓)

All	4/5	2/3	1/2	1/3	1/4	1/5	0

ge of OPEN-LOT Manure.....
e fraction x Item 23)

SCHEDULE C—Fertilizer Tonnage Applied to Cropland within a Single Crop Year

ON CROPLAND	ACRES TREATED a	WITH 0-20-0 0-14-6 0-10-10 2-12-6 4-10-6 etc. b	WITH 0-21-9 3-18-9 3-9-18 etc. c	WITH 0-44-0 0-20-20 4-24-12 etc. d	TOTAL AMOUNT Expressed as Single Strength 1 x a x b or 1½ x a x c or 2 x a x d
		lbs./acre	lbs./acre	lbs./acre	lbs./yearly
Corn.....					
Wheat.....					
Oats, barley.....					
Beets, tobacco....					
...					
Total on Cropland Yearly (in terms of Single Strength)....					lbs.
Item 21 Expressed as Tons of Single Strength goods (lbs. ÷ 2000)...					tons

SCHEDULE D—Residue from Crops and Bedding Needs

MATERIAL	ACRES Harvested a	Normal YIELD of GRAIN b	STRAW per bu. of Grain c	Estimated RESIDUE Produced a x b x c	
		bu./acre	lbs.	lbs.	
Soybean straw.....			110		
Wheat straw.....			100		
Oats straw.....			55		
Corn stover.....			55		
RESIDUE material produced (sum ÷ 2000).....				tons	
BEDDING NEEDED by Livestock (Item 23 x 15%).				tons	
Item 15 NOT NEEDED for Bedding (Difference).....				tons	acres

SCHEDULE E—Performance in Some Soil Practices

	Actual	Desirable
Average Rate of Manuring Each Acre Yearly..... (Item 22 plus 23 ÷ Item 31a)	tons	3 to 4
Average Rate of Fertilizing Each Acre Yearly..... (Item 21 x 2000 ÷ Item 31a)	lbs.	100 or up
Percent of Cropland Receiving Residue Yearly..... (Item 15 ÷ Item 31a)	%	20 to 40
Renewal of Soil Tilth: % of Cropland in Sod Yearly. (Item 17 ÷ Item 31a)	%	40 to 60

Comments on present crop system -

B. Proposed Crop System - Rotation, Acreage of Each Crop, Soil Treatment, Yield, and Total Production -

Rotation (major)

Rotation (minor)

Crops (list crops grown)	Acres	Soil Treatment per Acre	Average Yield per acre	Total Production	Available for feed or sale after seed and rental share deducted
Crops harvested -					
Crops pastured - Rotation pasture					
Meadow aftermath					
Other crop pasture					
Permanent pasture					
Woods pasture					
Crops not harvested or pastured but plowed down					

Productivity balance (computed according to Agronomy formula)

Comments on proposed new crop system -

Form 4808

The Soil Productivity Balance of

An engineering "yardstick" by which to measure the rate of rise or fall in the producing capacity of a farm's cropland. By it, all forces— reduced to a single over-all figure. The procedure is in terms of the individual farm's own conditions; the answer, arithmetic; its meaning usa

	Sod Crop GRAZED or MOWED for Hay	ACRES a	FACTOR b	POINTS a x b
1	*Alfalfa, seeded 1 yr. before.....		+2.5	+
2	*Alfalfa, seeded 2 yrs. before....		+0.5	+
3	*Alfalfa, seeded 3 yrs. before....		0	0
4	*Common Clovers,seeded 1 yr.before		+2.0	+
5	Clov-tim.Mix. seeded 1 yr. before.		+1.25	+
6	Tim-clov.Mix. seeded 2 yrs. before		+0.25	+
7	Timothy, seeded 1 yr. before.....		+0.25	+
8	Timothy, seeded 2 yrs. before.....		0	0
9	*Sweet Clover, seeded 1 yr. before		+3.0	+
10	(See Schedule A)		+	+
11	For RESTORATIVE CROPS Harvested...		.....	+

	Material NOT REMOVED from the Land	ACRES a	FACTOR b	POINTS a x b
12	Sweet Clover,MATURED, ungrazed this year...		+3.5	+
13	Sweet Clover, GREEN, plowed this year.....		+2.5	+
14	(See Schedule A)..		+	+
15	RESIDUES left on land from one year's crop: Corn stalk, soy and grain straw(Schedule A)		+0.25	+
16	Sum of CREDITS for Crop MANURE and RESIDUE.....			+

	CONTROLS and PROTECTIONS on Cropland	ACRES a	SLOPE b	FACTOR c	POINTS a x b x c
17	In SOD over winter and summer: (Items 11 plus 12).....		Item 31b	+1/10	+
18	In LIVE CROPS over winter only: (Item 26, 13,& 14 if applicable)...			+1/20	+
19	In ROW & SPRING DRILLED CROPS on CONTOUR and/or STRIPPED and/or TERRACED land (Items 25,27,28,29)..			+1/20	+
20	Credits for CONTROLS in operation against EROSION.....				+

	ADDED to SOIL during Crop Year	TONS a	FACTOR b	POINTS a x b
21	Fertilizer in terms of SINGLE Strength: (Item 21, Schedule C).....		+1.5	+
22	Manure produced on CROPLAND during GRAZING: (Item 22, Schedule B).....		+0.15	+
23	Manure produced in BARN and OPEN-LOT: (Item 23, Schedule B).....		+0.15	+
24	Sum of Credits for MANURE AND FERTILIZER.....			+

* Either straight stands or mixtures in which this legume constitutes 50 per cent or more (by weight) of the forage.

	ROW and DRILL Crops Harvested	ACRES a
25	Corn, beet, tobacco, potato.....	
26	Rye, winter wheat, winter barley..	
27	Oats, spring wheat, spring barley.	
28	Soybean, as seed and/or hay.....	
29	(See ScheduleA)	
30	For DEGRADING CROPS Harvested.....	

	Acres of all CROPLAND ON FARM (Items 11,12,14,30) a	Estimated SLOPE of all Cropland Ft. fall in 100 Ft. b
31		

32 Debits for EROSION assuming no cont

	WASTE of Manure	TONS a
33	Manure produced in OPEN-LOT, subject to wasting (Item 33, Schedule B)....	

34 Debits for WASTE of Manure.....

SUMMARY

35	CROPPING PATTERN (Items 11,30).....	+
36	CROP RESIDUE (Item 16).....	+
37	CONTROL & EROSION (Items 20,32).....	+
38	MANURE & FERTILIZER (Items 24,34)...	+
39	GRAND TOTALS.....	+
40	NET of Totals.....	

41 Net (Item 40) divided by Cropland (Item 31a) equal

›il Productivity Balance of Cropland

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ich to measure the rate of rise or fall in the producing capacity of a farm's cropland. By it, all forces—good and bad—making up soil productivity, are
The procedure is in terms of the individual farm's own conditions; the answer, arithmetic; its meaning usable, rendering the fate of cropland predictable.

	FACTOR b	POINTS a x b
	+2.5	+
	+0.5	+
	0	0
	+2.0	+
	+1.25	+
	+0.25	+
	+0.25	+
	0	0
	+3.0	+
	+	+
.....		+

	FACTOR b	POINTS a x b
	+3.5	+
	+2.5	+
	+	+
	+0.25	+
.....		+

	FACTOR c	POINTS a x b x c
	+1/10	+
	+1/20	+
	+1/20	+
SION.....		+

	FACTOR b	POINTS a x b
	+1.5	+
	+0.15	+
	+0.15	+
.....		+

	ROW and DRILL Crops Harvested	ACRES a	FACTOR b	POINTS a x b
25	Corn, beet, tobacco, potato.....		-2.0	-
26	Rye, winter wheat, winter barley..		-1.0	-
27	Oats, spring wheat, spring barley.		-1.0	-
28	Soybean, as seed and/or hay.....		-0.5	-
29	(See Schedule A)		-	-
30	For DEGRADING CROPS Harvested.....		.....	-

	Acres of all CROPLAND ON FARM (Items 11,12,14,30) a	Estimated SLOPE of all Cropland Ft. fall in 100 Ft. b	FACTOR c	POINTS a x b x c
31			-1/10	-
32	Debits for EROSION assuming no controls.....			-

	WASTE of Manure	TONS a	FACTOR b	POINTS a x b
33	Manure produced in OPEN-LOT, subject to wasting (Item 33, Schedule B)....		-0.07	-
34	Debits for WASTE of Manure.....			-

SUMMARY

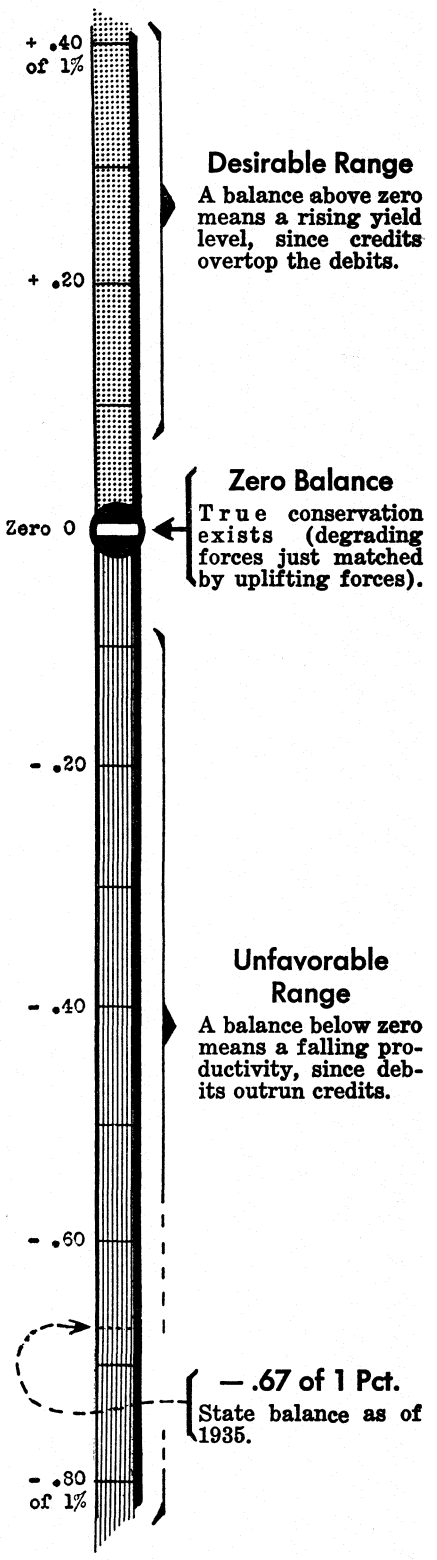
35	CROPPING PATTERN (Items 11,30).....	+	-
36	CROP RESIDUE (Item 16).....	+	
37	CONTROL & EROSION (Items 20,32).....	+	-
38	MANURE & FERTILIZER (Items 24,34)...	+	-
39	GRAND TOTALS.....	+	-
40	NET of Totals.....		

41 (Net, Item 40) divided by (Cropland, Item 31a) equals ____ of 1 %. SOIL PRODUCTIVITY BALANCE

Farm of.....

According to.....plan.

THE BALANCE SCALE



☞ *Supporting Schedules appear on reverse side.*

SCHEDULE A—Productivity Factors for Cropland

Item 10

FORAGE CROP AND SO USED	FACTOR
Brome grass	Same as timothy
Orchard grass	Same as timothy
Red top	Same as timothy
Lespedeza, annual	+0.5
Serica	+1.0

Item 14

GREEN CROP MANURE AND WINTER COVER CROP	FACTOR
Alfalfa, top growth left on land	+3.0
Clovers, common, top growth left on land	+2.7
Clover-timothy, top growth left on land	+2.0
Grasses, top growth left on land	+1.0
Serica, top growth left on land	+1.5
Timothy, top growth left on land	+1.0
Buckwheat, turned under green	+0.5
Cowpea, turned under green	+1.5
Crimson clover, turned under green	+1.0
Hubam clover, turned under green	+1.0
Corn, turned under at tasseling stage	+1.5
Soybean, turned under green	+1.5
Small grain cover crop, turned under or clipped	+0.5
Vetch, turned under green	+1.5

Item 15

CROP RESIDUE LEFT ON LAND	FACTOR
Beet tops	+0.25
Chaff, from combining alfalfa seed	+0.25
Chaff, from combining timothy seed	+0.25
Tomato vines	+0.25

Item 29

CROP HARVESTED OR GRAZED	FACTOR
Buckwheat	-1.5
Cabbage	-1.5
Canning pea	-0.5
Cowpea	-0.5
Cropland, fallowed	-0.5
Cropland, idle	0
Flax	-1.0
Fruit trees, cultivated	-2.5
Millet	-1.5
Onion	-2.0
Popcorn	-2.0
Rape	-1.5
Sorghums	-2.0
Sweet corn	-2.0
Sudan grass	-1.5
Tomato	-2.0
Vineyard, cultivated	-2.5

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Agricultural College Extension Service, H. C. Ramsower, Director, Columbus, Ohio

SCHEDULE B—Tonnage of Manure Produced for Cropland

TO ESTIMATE the tonnage of manure available for Cropland in a single year, one of the two following methods may be employed.

Method I - Based on Estimated Loads Hauled (less accurate)

	Estimated acreage of CROPLAND SOD well grazed	
	About how many MONTHS so grazed during the year	
Item 22	Tonnage of MANURE directly on GRAZED Cropland (above acres x months x ½ ton)	
	*Estimated tonnage hauled from BARN or SHED	
	*Estimated tonnage hauled from OPEN LOT	
Item 23	Combined Tonnage from BARN and LOT (Sum of above)	

Method II - Based on Numbers of Livestock (more accurate)

GRAZED on Cropland SOD				KIND	Livestock in BARN & OPEN-LOT			
HEAD a	MONTHS IN FIELD b	TONS per Mo. per Hd. c**	TONNAGE of MANURE a x b x c		HEAD a	MONTHS Con-fined b	TONS per Mo. per Hd. c***	TONNAGE of MANURE a x b x c
		0.8		Horses & Mules			1.2	
		0.7		Cows kept			1.0	
		0.3		Young Cattle (not veal)			0.4	
		0.6		Beef Cattle fattened			0.8	
		0.3		Sows kept			0.4	
		0.06		Pigs fed out: raised &/or bought			0.12	
		0.08		Ewes kept			0.12	
		0.03		Lambs fed out: raised &/or bought			0.05	
		0.005		Poultry			0.01	

Item 22 On GRAZED Cropland

Item 23 Combined Tonnage in BARN & OPEN-LOT

OF the winter-produced Manure, about what FRACTION is normally produced in an OPEN-LOT: (✓)

All	4/5	2/3	1/2	1/3	1/4	1/5	0

Item 33 Tonnage of OPEN-LOT Manure (Above fraction x Item 23)

* Standard spreader = 1 ton; large size 1½ tons.

** Amounts (no bedding) have been adjusted to the equivalent of cattle manure.

*** Amounts (including bedding) have been adjusted to the equivalent of cattle manure as measured by crop-producing effect.

SCHEDULE B—Tonnage of Manure Produced for Cropland

TO ESTIMATE the tonnage of manure available for Cropland in a single year, one of the two following methods may be employed.

Estimated Loads Hauled (less accurate)

l acreage of CROPLAND SOD well grazed.....	
r many MONTHS so grazed during the year....	
of MANURE directly on GRAZED Cropland..... re acres x months x ½ ton)	
d tonnage hauled from BARN or SHED.....	
d tonnage hauled from OPEN LOT.....	
Tonnage from BARN and LOT..... of above)	

Numbers of Livestock (more accurate)

on Cropland SOD			KIND	Livestock in BARN & OPEN-LOT			
ONTHS IN IELD b	TONS per Mo. per Hd. c**	TONNAGE of MANURE a x b x c		HEAD a	MONTHS Con-fined b	TONS per Mo. per Hd. c***	TONNAGE of MANURE a x b x c
	0.8		..... Horses & Mules			1.2	
	0.7		..... Cows kept.....			1.0	
	0.3		..... Young Cattle (not veal).....			0.4	
	0.6		.....Beef Cattle fattened.....			0.8	
	0.3		..... Sows kept.....			0.4	
	0.06		.Pigs fed out: raised &/or bought.			0.12	
	0.08		..... Ewes kept.....			0.12	
	0.03		.Lambs fed out:raised &/or bought.			0.05	
	0.005		.....Poultry.....			0.01	
Cropland....			Item 23 Combined Tonnage in BARN & OPEN-LOT..				

= 1 ton; large size 1½ tons.
ing) have been adjusted to attle manure.
g bedding) have been advalent of cattle manure as producing effect.

OF the winter-produced Manure, about what FRACTION is normally produced in an OPEN-LOT: (✓)

All	4/5	2/3	1/2	1/3	1/4	1/5	0

Item 33 Tonnage of OPEN-LOT Manure..... (Above fraction x Item 23)

SCHEDULE C—Fertilizer Tonnage Applied to Cropland within a Single Crop Year

ON CROPLAND	ACRES TREATED a	WITH 0-20-0 0-14-6 0-10-10 2-12-6 4-10-6 etc. b	WITH 0-21-9 3-18-9 3-9-18 etc. c	WITH 0-44-0 0-20-20 4-24-12 etc. d	TOTAL AMOUNT Expressed as Single Strength 1 x a x b or 1½ x a x c or 2 x a x d
		lbs./acre	lbs./acre	lbs./acre	lbs./yearly
Corn.....					
Wheat.....					
Oats, barley.....					
Beets, tobacco....					
...					
Total on Cropland Yearly (in terms of Single Strength)....					lbs.
Item 21 Expressed as Tons of Single Strength goods (lbs.÷2000)...					tons

SCHEDULE D—Residue from Crops and Bedding Needs

MATERIAL	ACRES Harvested a	Normal YIELD of GRAIN b	STRAW per bu.of Grain c	Estimated RESIDUE Produced a x b x c	
		bu./acre	lbs.	lbs.	
Soybean straw.....			110		
Wheat straw.....			100		
Oats straw.....			55		
Corn stover.....			55		
RESIDUE material produced (sum ÷ 2000).....				tons	
BEDDING NEEDED by Livestock (Item 23 x 15%).				tons	
Item 15 NOT NEEDED for Bedding (Difference).....				tons	acres

SCHEDULE E—Performance in Some Soil Practices

	Actual	Desirable
Average Rate of Manuring Each Acre Yearly..... (Item 22 plus 23 ÷ Item 31a)	tons	3 to 4
Average Rate of Fertilizing Each Acre Yearly..... (Item 21 x 2000 ÷ Item 31a)	lbs.	100 or up
Percent of Cropland Receiving Residue Yearly..... (Item 15 ÷ Item 31a)	%	20 to 40
Renewal of Soil Tilth:% of Cropland in Sod Yearly. (Item 17 ÷ Item 31a)	%	40 to 60

V. PLANNING THE LIVESTOCK PROGRAM

If a new crop program is to replace an old one on a farm which is at present stocked, some revision in the type and number of livestock may be necessary. If no changes are made in the crop system some revisions in the livestock program may nevertheless be desirable. In planning a new or revising an old livestock program one must consider the feed, buildings, and man labor available, market outlets, and the experience of the operator.

A. Determining Type, Number, and Feed Required by the Proposed Program

List types of livestock and number of head of each included in the proposed program	List types of feed (grains, supplements, roughages, pasture, etc.) and amount to be fed annually											
Total feed required by proposed livestock												
Farm produced feed available (see proposed crop plan)												
Surplus or deficit of farm feed and feed to be purchased												

B. Comments on Adjustments in Crop and Livestock Program to Obtain a Better Balance Between Feed Produced and Feed Required

VI. PLANNING TO GET THE WORK DONE

A. Equipment and Power Needed to Put the Plan Into Operation

1. Operations to be Performed on Crops and Time Available to Do Task

List operations to be performed	Acres covered per operation by crops					Total Acres of each operation	Minimum work time available

2. Equipment Required, Size, and Whether Owned or Hired

List equipment to be used	Desirable size	To be owned personally	To be owned jointly	To be hired	Check if now owned or is available

B. Man Labor Needed to Put the Plan Into Operation

1. Man Labor Required to Produce Crops in Proposed Plan

List crops included in plan requiring man labor	Acres	Man Hours	
Total man hours			

The following is an illustration of the determination of the hours or man labor required to produce 10 acres of oats on farmer B's farm. Farmer B sows his oats on corn stalk ground without plowing. Instead he disks it once over and if any or all need to be gone over a second time he does so. On the average he disks one-half of the ground the second time. He generally attaches his cultipacker behind the disk and pulls them with his tractor, covering about 20 acres per day. He uses his two-horse drill to sow the oats and usually seeds 10 acres per day. To harvest the oats he uses a 7' grain binder drawn by the tractor which cuts at the rate of 16 acres per day. He has found that one man can shock about 7 acres of average oats per day and that some additional time must be allowed for re-shocking. The stationary thresher which he hires requires a crew of 14 men and threshes about 40 acres of average oats per day.

Operation	Acres Covered	Rate per 10 Hours	Total Hours
Double disk and cultipack 1½ times corn stalk ground - Tractor power	15	20 acres	8
Drill oats - 2 horses	10	10 acres	10
Cut oats with binder - Tractor power	10	16 acres	8
Shock and re-shock oats	10	7 acres	16
Thresh (14 man crew 28" cylinder machine)	10	40 acres	35
Total man hours required			77

2. Man labor required to care for livestock in proposed plan

List livestock included in plan	Number	Man hours per unit	Total hours
Total man hours			

3. Total man labor required annually and the hours available

Type of Work	Total Hours
Labor on crop enterprises (see form page 14 - 1)	
Labor on livestock enterprises (see form page 15 - 2)	
Total labor required for crop and livestock enterprises	
Total maintenance and miscellaneous labor (1)	
Total labor required to operate the farm	
Total family labor now available	

(1) Maintenance & miscellaneous labor requires approximately 1 hour for each 3 hours spent on crops & livestock.

4. Distribution of Man Labor Required for Crops and Livestock by Half-month Periods

Month	Hours per period on crop and livestock enterprises											Total labor on crops and livestock	Total labor available	Labor Available for Misc. work
Jan.														
Feb.														
Mar.														
Apr.														
May														
June														
July														
Aug.														
Sept.														
Oct.														
Nov.														
Dec.														
Total														

Total man labor required annually for all types of work _____ hours. Total labor available _____ hours.

Annual surplus or deficit: _____ hours.

VII. DETERMINING THE PROBABLE RECEIPTS, EXPENSES, AND FARM INCOME

A. Average Annual Receipts When New Organization Is Fully Established

Probable date of sale	List details of the transaction		Receipts (dollars)
	Product	Quantity and price per unit	
	Total average annual receipts		

B. Average Annual Expenditures When New Organization is Fully Established

Probable date of purchase	List details of the transaction		Expenditures (dollars)
	Product	Quantity and price per unit	
	Sub-total - To be carried forward		

B. (Expenses continued from preceding page)

Probable date of purchase	List details of the transaction		Expenditures (dollars)
	Product	Quantity and price per unit	

VIII. PLACING THE NEW ORGANIZATION INTO OPERATION

Maps showing field layout and crop pattern by years

List adjustments to be made during the -	
First year of operation of the new plan	Second year of operation of the new plan

Placing the New Organization into Operation (continued)

Maps showing field layout and crop pattern by years

List adjustments to be made during the -	
Third year of operation of the new plan	Fourth year of operation of the new plan